SANYO

SANYO
STEREO AMPLIFIER
DCA 200UM
SERVICE MANUAL

SPECIFICATIONS

POWER AMPLIFIER SECTION

Continuous Power Output:	
Amplifier load at 4 ohms	20W/20W
at 8 ohms	18W/18W
(1 KHz, each channel driven)	
Amplifier load at 4 ohms	16W/16W
at 8 ohms	15W/15W
(1 KHz, both channel driven)	
Power Output in the range of 20 to 20 KHz:	
Amplifier load at 4 ohms	13W/13W
at 8 ohms	13W/13W
(Both channel driven)	
Total Harmonic Distortion:	Less than 0.8% at Rated Output
(Amplifier load at 8 ohms)	Less than 0.1% at 1W/ch.
Inter Modulation Distortion:	Less than 0.8% at Rated Output
(Amplifier load at 8 ohms)	Less than 0.1% at 1 W/ch.
Power Bandwidth (IHF):	20 to 70 KHz
(Both channel driven)	
Frequency Response:	25 to 80 KHz ±3 dB
Input Sensitivity/Impedance:	
Speaker Impedance:	Accepts 4 ohms to 16 ohms
Damping Factor:	More than 30 (1 KHz, 8 ohms)
Signal to Noise Ratio:	More than 110 dB (IHF, short circuit A network)
Residual Hum and Noise:	0.3mV (at 8 ohms) Less than 0.8 mV (8 ohms, pre & power amplifier)

PRE AMPLIFIER SECTION

Input Sensitivity/Impedance:	
(1 KHz, at rated power)	PHONO : 2.5mV/50K ohms
	TUNER : 150mV/50K ohms
	AUX : 150mV/50K ohms
	TAPE, 1, 2 : 150mV/50K ohms
	MIC : 2.5mV/50K ohms
Phono Overload Input:	RMS 180mV Max. Peak to Peak 420mV Max.
Mic Overload Input:	RMS 150mV Max.
Signal to Noise Ratio:	PHONO : More than 70 dB (IHF, A network)
	TUNER : More than 90 dB (IHF, A network)
	AUX : More than 90 dB (IHF, A network)
	TAPE : More than 90 dB (IHF, A network)
	MIC : More than 70 dB (IHF, A network)
Output Level/Impedance:	TAPE REC : 140mV/1 K ohms (RCA pin jacks)
	TAPE REC : 35mV/80K ohms (DIN)
Frequency Response:	
PHONO	RIAA Standard Equalization 30 to 15K Hz ±0.5 dB
TUNER/TAPE/AUX	25 to 80K Hz +0, −1 dB
MIC	70 to 14K Hz +0, −1 dB
Tone Controls:	
Bass	±10 dB at 100 Hz
Treble	±10 dB at 10 K Hz
Filter Control:	
High Filter:	5K Hz (−6 dB/oct)
Low Filter:	70 Hz (−6 dB/oct)
Loundness Control:	+8 dB at 100 Hz
(Power output level at −30dB)	+3 dB at 10K Hz

ALL OVER THE SECTION

Power Requirements:	
UM Version (Switchable)	110V, 120V, 220V or 240V, 50/60Hz
Power Consumption:	47 watts at full power
AC Outlet:	Two Switched (150 watts max.) One Unswitched (200 watts max.)
Dimensions:	Width 405 mm
	Deptch 365 mm
	Height 185 mm

ADJUSTMENT

ADJUSTMENT OF MAIN AMP P.C. BOARD

BEFORE ADJUSTMENT

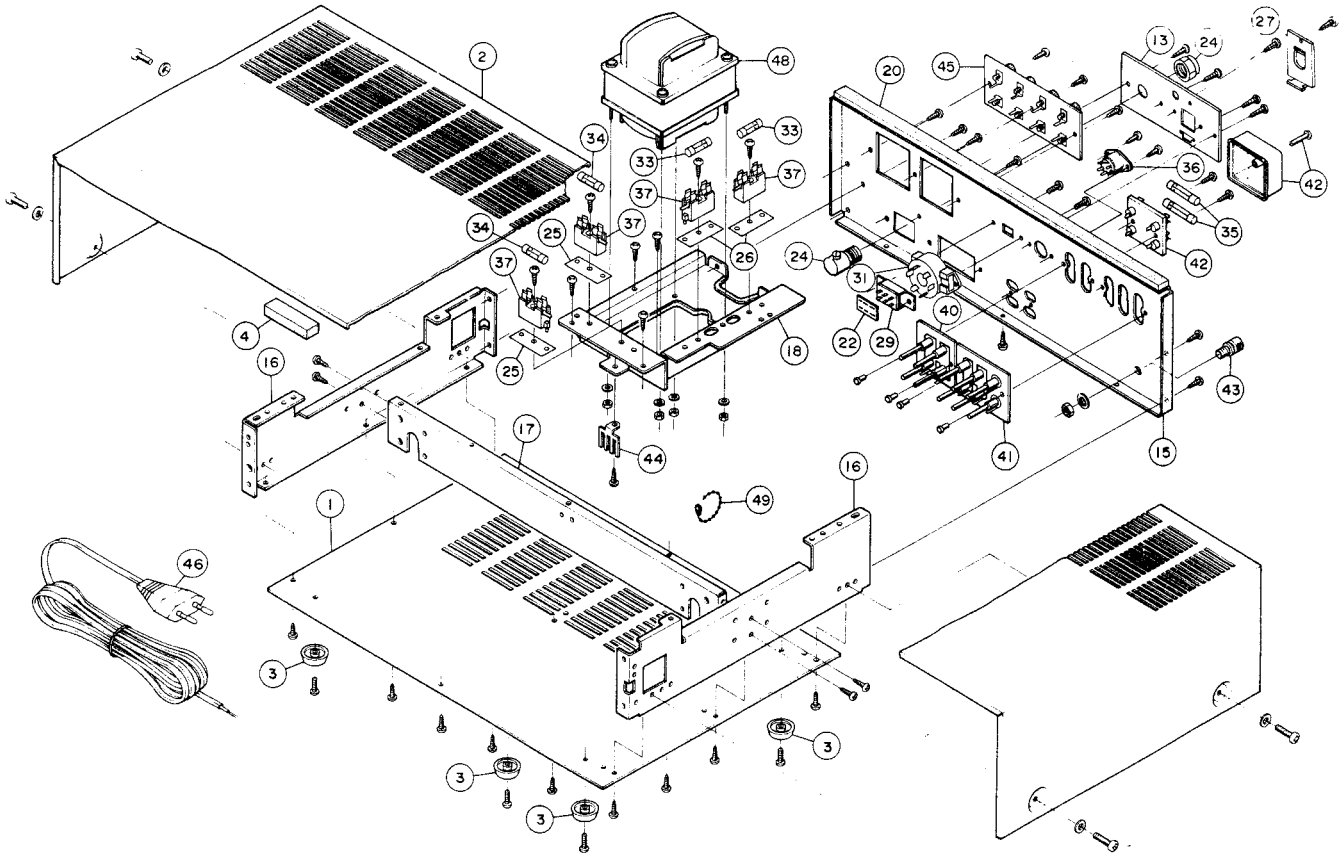
1. Pull out the PRE OUT/MAIN IN connector.
2. After the power switch is turned ON, wait a few minutes before adjustment, to be sure of the most stable operation.
3. Connect dummy load resistors (8Ω) to the speaker terminals.
4. Tool to be provided.
   Electronic Voltmeter, or DC V.T.V.M. or Circuit Tester
   (Input impedance: More than 50 KΩ/V)

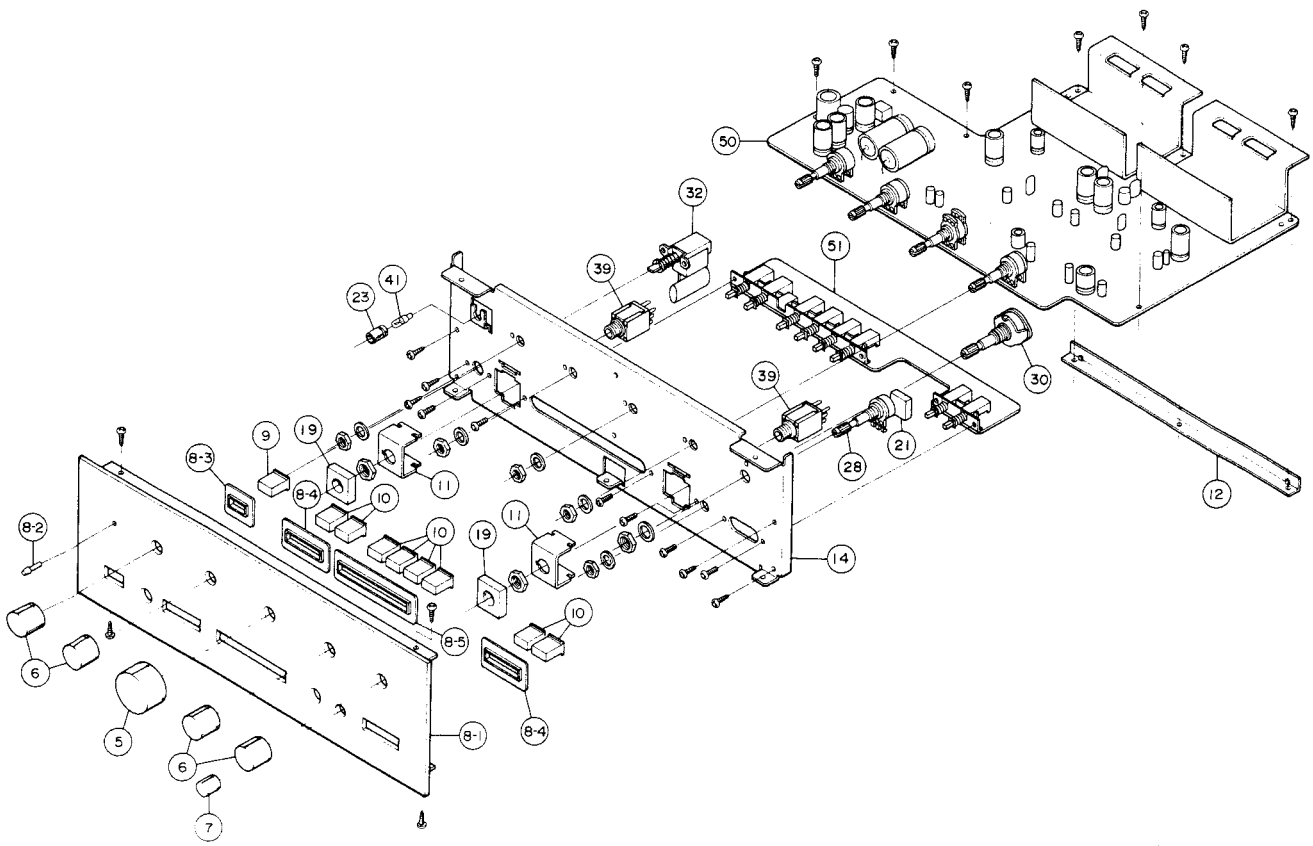
(A) MID-POINT POTENTIAL ADJUSTMENT
Set the voltage between the speaker terminal and ground (Chassis) to 0V ±0.01V with VR 01 (VR 02)

(B) IDLING CURRENT ADJUSTMENT
Turn the VR 03 (VR 04) so that the idling current may become 35mA ... Measure the voltage of the both sides of the R91 (R92) resistor (0.47Ω) and set the VR 03 (VR 04) so that the value may become 0.018V ±0.001V.
Note: Polarity ... Emitter of the Q23 (Q24) ..... (+)
Mid-point ..... (−)

(C) Repeat seps A B no further improvement is possible.
Note: a. Turn the semi-fixed variable resistor slowly during adjustment;
b. Be careful of the polarity of each measurement point.

EXPLODED VIEW





PARTS LIST

Key No.	Part No.	Description	Q'ty
	PACKING		
	131 6 1139 55309	Box Corrugate Exp.	1
	131 6 2119 01550	Bag Polyethylene Exp.	1
	131 6 3009 19950	Pad, Side	2
	131 6 3009 19960	Pad, Top	1
	131 6 3009 20730	Pad, Rear	1
	131 6 3069 16150	Patching Sheet	1
	131 6 4559 10700	Manufacturing No.	3
	ACCESSORY		
	131 6 2719 10600	Bag Fan	1
	131 6 4119 41704	Explanatory Booklet	1
	CABINET		
1	131 2 1105 15402	Plate, Bottom	1
2	131 2 1410 13301	Cover	1
3	131 2 1801 12900	Leg	4
4	131 2 5205 15400	Cushion	1
	131 2 7103 19800	Label	1
	131 2 7103 19900	Caution Label	1
	APPEARANCE		
5	131 0 1001 31301	Knob Assy, Main VR	1
6	131 0 1001 31402	Knob Assy, Function, Balance, Bass, Treble	4
7	131 0 1001 31501	Knob Assy, Mic VR	1
8	131 0 1016 19901	Panel Decorate Assy	1
8-1	131 2 1203 31601	├Panel Control	1
8-2	131 2 1504 10902	├Plate Sign Lamp	1
8-3	131 2 6113 19000	├Shelter	2
8-4	131 2 6113 19100	├Shelter	1
8-5	131 2 6113 19200	└Shelter	1
9	131 2 1601 34800	Knob, Power SW	8
10	131 2 1601 34900	Knob, Push SW	

Key No.	Part No.	Description	Q'ty
	CHASSIS		
11	131 2 3101 29900	Metal Mount, Jack	2
12	131 2 3101 30000	Metal Mount, PCB	1
13	131 2 3101 36100	Metal Mount (Voltage Select)	1
14	131 2 3305 18400	Panel, Front	1
15	131 2 3306 19306	Panel, Rear	1
16	131 2 3308 11900	Chassis, Sub, Side	2
17	131 2 3308 12100	Chassis, Sub, Center	1
18	131 2 3617 14700	Metal Mount, Trans	1
19	131 2 4208 20400	Spacer, Jack	2
20	131 2 5205 15300	Cushion, Panel Rear	1
21	131 2 5206 12500	Moldplane, Volume	1
22	131 2 6107 11600	Plate Sever, Mixing SW	1
23	131 2 6111 12500	Bushing	1
24	131 2 6111 14300	Bushing	1
25	131 2 7103 20900	Label (Fuse 315mA)	2
26	131 2 7103 20902	Label (Fuse 2.0A)	2
27	131 2 7104 00600	Plate Pad, Switch	1
	ELECTRICAL PARTS		
28	4 2229 24650	VR B-20K	1
29	4 2319 22520	6P Slide Switch	1
30	4 2319 23950	Switch Rotary) or Function	1
	4 2319 24040	Switch Rotary)	1
31	4 2319 24500	Switch Rotary 4P, Voltage Select	1
32	4 2319 34090	Switch, Push AC Power	1
33	4 2349 20250	Fuse 2A, Main Power	2
34	4 2349 20410	Fuse 0.315A	2
35	4 2349 21200	Fuse 2A, Protector	2
36	4 2359 20190	Socket 5P DIN	1
37	4 2359 21021	Fuse Holder	4
39	4 2359 21670	Jack, Mic	2
40	4 2359 22010	Socket, Phono 4P, Tape	1
41	4 2359 22022	Socket, Phono 6P, Phono	1
42	4 2359 22031	Fuse Holder, Protection	1
43	4 2379 21060	Terminal G	1
44	4 2379 21260	Grand. Terminal Lug 5P	1
45	4 2379 21470	Terminal 8P	1
46	4 2439 20521	Power Cord	1
47	4 6129 20219	Small Lamp Indicator	1
48	4 2519 23700	Power Trans	1
49	131 2 3608 11300	Cramp Wire	16

NOTES: 1. Part orders must contain Model Number, Part Number and Description.
2. Ordering quantity of screws and/or resisotrs must be multiple of 10 pcs.

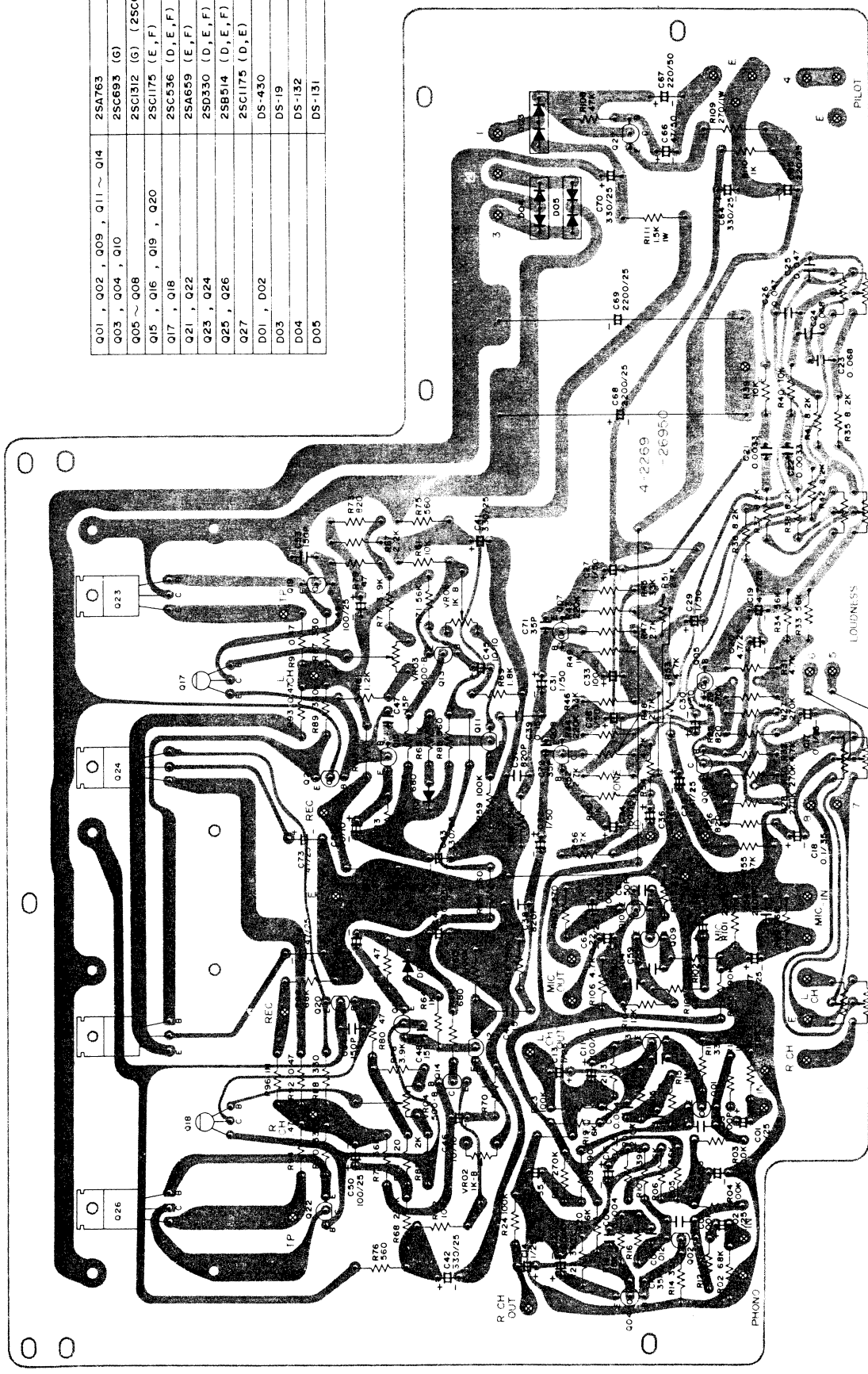
PARTS LIST

Key No.	Part No.	Description	Location	Q'ty
	AF PCBASSY			
50	131040016280O0	AF PC ASSY		1
	42229242100	VR 1KB	CENTER VOLTAGE ADJ,	2
	42229242200	VR 500B	IDLING ADJ,	2
	42229246600	VR MN-250K	BALANGE,	1
	42229246700	VR B-250K 2	VOLUME,	1
	42229246800	VR B-50K 2	TONE,	2
	C1ARB-106A--	ELECT 10MF 10V -	C 45,C 46,	2
	C1ARB-107A--	ELECT 100MF 10V -	C 11,C 12,C 33,C 34, C 51,C 52,C 63,	7
	C1CRB-107A--	ELECT 100MF 16V -	C 58,	1
	C1CUBM104A--	TANTAL 0.1MF 35V M	C 17,C 18,	2
	C1ERB-107A--	ELECT 100MF 25V -	C 49,C 50,	2
	C1ERB-337A--	ELECT 330MF 25V -	C 41,C 42,C 43,C 44, C 64,C 70,	6
	C1ERB-474A--	ELECT 0.47MF 25V -	C 35,C 36,	2
	C1ERT-228A--	ELECT 2200MF 25V -	C 68,C 69,	2
	C1EUBM105A--	ALSIC 1MF 25V M	C 01,C 02,C 13,C 14, C 57,	5
	C1EUBM224A--	ALSIC 0.22MF 25V M	C 62,	1
	C1EUBM475A--	TANTAL 4.7MF 25V M	C 19,C 20,	2
	C1HCSK150SL-	CERA 15PF 50V K	C 47,C 48,	2
	C1HCSK151SL-	CERA 150PF 50V K	C 53,C 54,	2
	C1HCSK251SL-	CERA 250PF 50V K	C 56,	1
	C1HCSK350SL-	CERA 35PF 50V K	C 09,C 10,C 71,C 72,	4
	C1HCSK500SL-	CERA 50PF 50V K	C 61	1
	C1HFAK123A--	MYLAR 0.012MF 50V K	C 05,C 06,	2
	C1HFAK332A--	MYLAR 0.0033MF 50V K	C 21,C 22,	2
	C1HFAM104A--	ELECT 47MF 25V M	C 73,C 74,	2
	C1HFAM154A--	MYLAR 0.15MF 50V M	C 39,C 40,	2
	C1HFAM402A--	MYLAR 0.004MF 50V M	C 07,C 08,C 60,	3
	C1HFAM473A--	MYLAR 0.047MF 50V M	C 25,C 26,	2
	C1HFAM683A--	MYLAR 0.068MF 50V M	C 23,C 24,	2
	C1HRB-105A--	ELECT 1MF 50V -	C 27,C 28,C 29,C 30, C 31,C 32,	6
	C1HRB-227A--	ELECT 220MF 50V -	C 67,	1
	C1HRB-476A--	ELECT 47MF 50V -	C 66,	1
	C1HYSK501R--	CERA 500PF 50V K	C 03,C 04,	2
	C1HYSK821R--	CERA 820PF 50V K	C 37,C 38,C 59,	3
	C1VRB-107A--	ELECT 100MF 35V -	C 55	1
	C1VRB-227A--	ELECT 220MF 35V -	C 65,	1
	C1VTBM106A--	TANTAL 10MF 35V M	C 15,C 16,	2
	R2EDSK102A	CARBO 1K 1/4W K	R 11,R 12,R 49,R 50, R 63,R 64,R110,	7
	R2EDSK103A	CARBO 10K 1/4W K	R 39,R 40,R 61,R 62,	4
	R2EDSK104A	CARBO 100K 1/4W K	R 03,R 04,R 23,R 24, R 59,R 60,	6
	R2EDSK105A	CARBO 1M 1/4W K	R 15,R 16,R 95,R 96,	4
	R2EDSK122A	CARBO 1.2K 1/4W K	R 81,R 82,	2

NOTES: 1. Part orders must contain Model Number, Part Number and Description.
2. Ordering quantity of screws and/or resisotrs must be multiple of 10 pcs.

AF P.C.B. ASS'Y BOTTOM VIEW

Q01 , Q02 , Q09 , Q11 ~ Q14	2SA763
Q03 , Q04 , Q10	2SC693 (G)
Q05 ~ Q08	2SC1312 (G) (2SC693-G)
Q15 , Q16 , Q19 , Q20	2SC1175 (E, F)
Q17 , Q18	2SC536 (D, E, F)
Q21 , Q22	2SA659 (E, F)
Q23 , Q24	2SD330 (D, E, F)
Q25 , Q26	2SB514 (D, E, F)
Q27	2SC1175 (D, E)
D01 , D02	DS-430
D03	DS-19
D04	DS-132
D05	DS-131



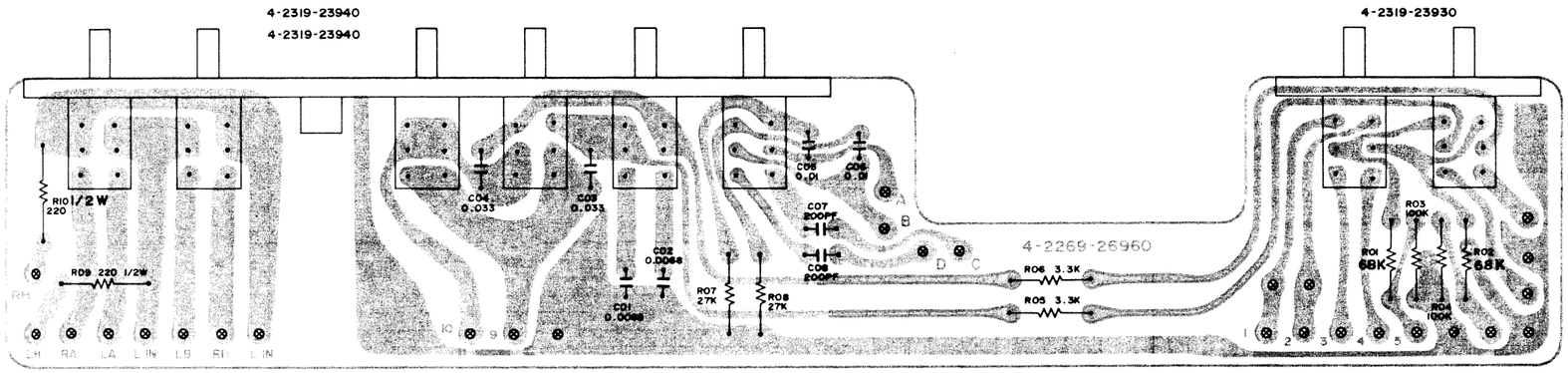
PARTS LIST

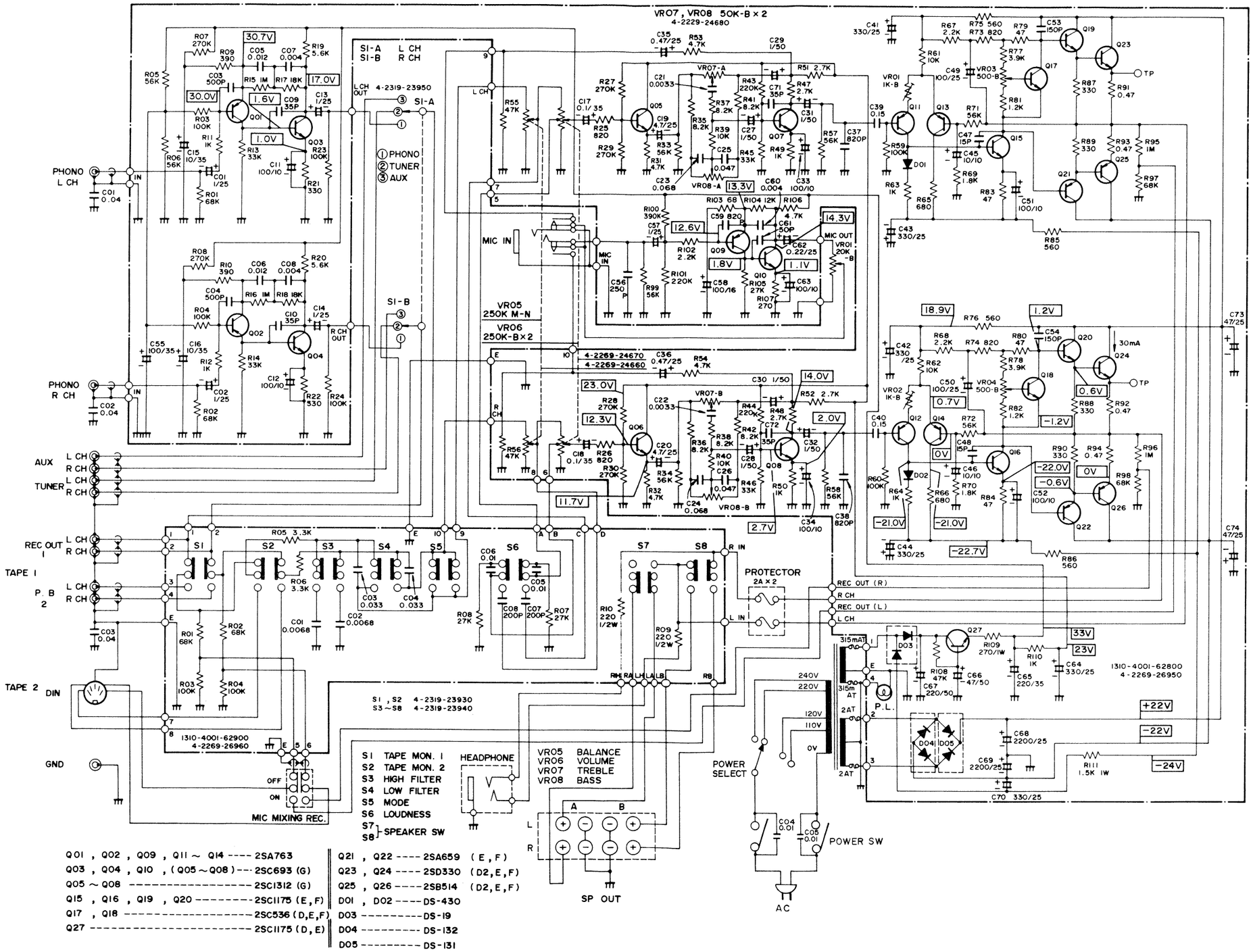
Part No.	Description	Location	Q'ty
AF PCB ASSY			
R2EDSK123A	CARBO 12K 1/4W K	R104,	1
R2EDSK182A	CARBO 1.8K 1/4W K	R 69,R 70,	2
R2EDSK183A	CARBO 18K 1/4W K	R 17,R 18,	2
R2EDSK222A	CARBO 2.2K 1/4W K	R 67,R 68,R102,	3
R2EDSK224A	CARBO 220K 1/4W K	R 43,R 44,R101,	3
R2EDSK271A	CARBO 270 1/4W K	R107,	1
R2EDSK272A	CARBO 2.7K 1/4W K	R 47,R 48,R 51,R 52,	4
R2EDSK273A	CARBO 27K 1/4W K	R105,	1
R2EDSK274A	CARBO 270K 1/4W K	R 07,R 08,R 27,R 28, R 29,R 30,	6
R2EDSK331A	CARBO 330 1/4W K	R 21,R 22,R 87,R 88, R 89,R 90,	6
R2EDSK333A	CARBO 33K 1/4W K	R 13,R 14,R 45,R 46,	4
R2EDSK391A	CARBO 390 1/4W K	R 09,R 10,	2
R2EDSK392A	CARBO 3.9K 1/4W K	R 77,R 78,	2
R2EDSK394A	CARBO 390K 1/4W K	R100	1
R2EDSK470A	CARBO 47 1/4W K	R 79,R 80,R 83,R 84,	4
R2EDSK472A	CARBO 4.7K 1/4W K	R 31,R 32,R 53,R 54, R106,	5
R2EDSK473A	CARBO 47K 1/4W K	R 55,R 56,R108,	3
R2EDSK561A	CARBO 560 1/4W K	R 75,R 76,R 85,R 86,	4
R2EDSK562A	CARBO 5.6K 1/4W K	R 19,R 20,	2
R2EDSK563A	CARBO 56K 1/4W K	R 05,R 06,R 33,R 34, R 57,R 58,R 71,R 72, R 99,	9
R2EDSK680A	CARBO 68 1/4W K	R103,	1
R2EDSK681A	CARBO 680 1/4W K	R 65,R 66,	2
R2EDSK683A	CARBO 68K 1/4W K	R 01,R 02,R 97,R 98,	4
R2EDSK821A	CARBO 820 1/4W K	R 25,R 26,R 73,R 74,	4
R2EDSK822A	CARBO 8.2K 1/4W K	R 35,R 36,R 37,R 38, R 41,R 42,	6
R2HZSKR47A	FUSE 0.47 1/2W K	R 91,R 92,R 93,R 94,	4
R3AXPK152A	OMF 1.5K 1W K	R111,	1
R3AXPK271A	OMF 270 1W K	R109,	1
TJJ-2SA763--5-	2SA763 TRANSISTOR) or	Q 01, Q 02, Q 09, Q 11, Q 12, Q 13, Q 14,	7
TJJ-2SA763--6-	2SA763 TRANSISTOR	Q 01, Q 02, Q 09, Q 11, Q 12, Q 13, Q 14,	7
TMM-2SC1312-F-	TRANSISTOR 2SC1312) or	Q 05, Q 06, Q 07, Q 08,	4
TMM-2SC1312-G-	TRANSISTOR 2SC1312	Q 05, Q 06, Q 07, Q 08,	4
10231103006000	SCREW,PAN HD TPG 2	PLATE HEAT SINK,	8
10232203006000	SCREW,BUTTON HD TPG	POWER TRANSISTOR,	4
13126108112010	COVER SEVER	R111,	2
13126201211000	PLATE HEAT SINK		2
20252300019101	DS 19 DIODE	D 03,	1
20252320131101	DS 131 DIODE	D 05,	1
20252320132101	DS 132 DIODE	D 04,	1
20355100693792	2SC 693 GL TRANSISTOR	Q 03, Q 04, Q 10,	3
20355110536400	2SC536 D-FP TRANSISTOR) or	Q 17, Q 18,	2
20355110536500	2SC536E-FP TRANSISTOR) or	Q 17, Q 18,	2
20355110536600	2SC536F-FP TRANSISTOR) or	Q 17, Q 18,	2
20356460514402	2SB 514D2 TRANSISTOR) or	Q 25, Q 26,	2
20356460514500	2SB 514E TRANSISTOR) or	Q 25, Q 26,	2
20356460514600	2SB 514F TRANSISTOR) or	Q 25, Q 26,	2
20356701175500	2SC 1175E TRANSISTOR) or	Q 15, Q 16, Q 19, Q 20, Q 27,	5
20356701175600	2SC 1175F TRANSISTOR	Q 15, Q 16, Q 19, Q 20, Q 27, Q 27 D RANK OK,	5
20356800659500	2SA 659E TRANSISTOR) or	Q 21, Q 22,	2
20356800659600	2SA 659F TRANSISTOR) or	Q 21, Q 22,	2
20358220330402	2SD 330D2 TRANSISTOR) or	Q 23, Q 24,	2
20358220330500	2SD 330E TRANSISTOR) or	Q 23, Q 24,	2
20358220330600	2SD 330F TRANSISTOR) or	Q 23, Q 24,	2
20559020430110	DS 430 DIODE	D 01,D 02,	2

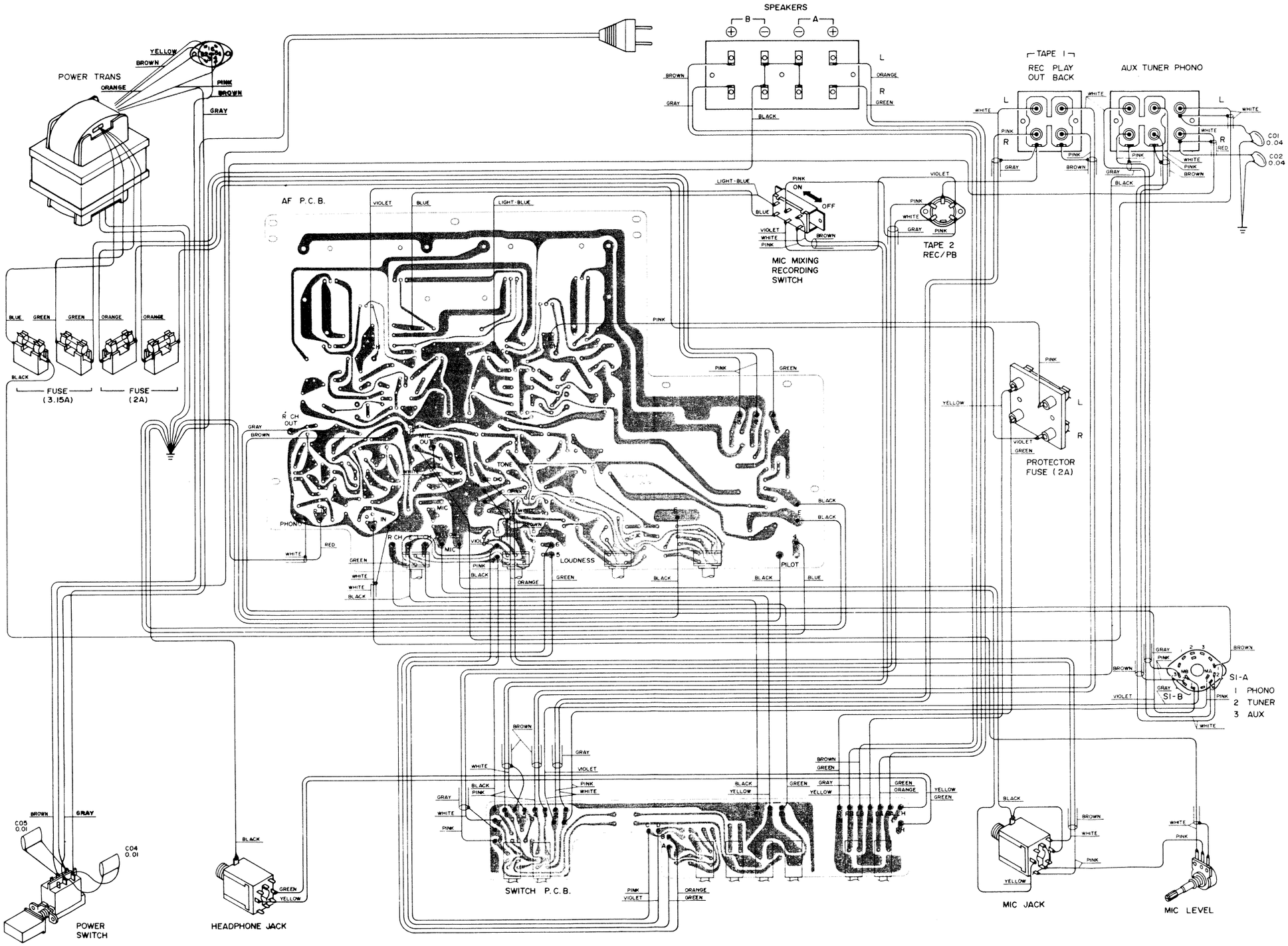
PARTS LIST

Key No.	Part No.	Description	Location	Q'ty
	SWITCH PCB ASSY			
51	13104001629010	SW PC ASSY		1
	42319239300	SW PUSH 2KEY	TAPE MONITOR,	1
	42319239400	SW PUSH 6KEY	SP,FILTER,MODE,LOUD,	1
	C1HCSK201SL-	CERA 200PF 50V K	C 07,C 08,	2
	C1HFAM103A--	MYLAR 0.01MF 50V M	C 05,C 06,	2
	C1HFAM333A--	MYLAR 0.033MF 50V M	C 03,C 04,	2
	C1HFAM682A--	MYLAR 0.0068MF 50V M	C 01,C 02,	2
	R2EDSK104A	CARBO 100K 1/4W K	R 03,R 04,	2
	R2EDSK273A	CARBO 27K 1/4W K	R 07,R 08,	2
	R2EDSK332A	CARBO 3.3K 1/4W K	R 05,R 06,	2
	R2EDSK683A	CARBO 68K 1/4W K	R 01,R 02,	2
	R2HCPK221A	SOLID 220 1/2W K	R 09,R 10,	2

SWITCH P.C.B. ASS'Y BOTTOM VIEW




VR07, VR08 50K-B×2
4-2229-24680
SI-A L CH
SI-B R CH
LCH OUT 4-2319-23950
RCH OUT
PHONO L CH
PHONO R CH
AUX L CH R CH
TUNER L CH R CH
REC OUT 1 L CH R CH
TAPE 1 P.B 2 L CH R CH
TAPE 2 DIN
GND
MIC IN
VR05 250K M-N
VR06 250K-B×2
4-2269-24670
4-2269-24660
PROTECTOR 2A×2
REC OUT (R)
R CH
REC OUT (L)
L CH
R IN
L IN
POWER SELECT
240V
220V
120V
110V
0V
315mA T
2AT
P.L.
1310-4001-62800
4-2269-26950
1310-4001-62900
4-2269-26960
S1, S2 4-2319-23930
S3~S8 4-2319-23940
S1 TAPE MON. 1
S2 TAPE MON. 2
S3 HIGH FILTER
S4 LOW FILTER
S5 MODE
S6 LOUDNESS
S7 } SPEAKER SW
S8 }
HEADPHONE
MIC MIXING REC.
OFF
ON
VR05 BALANCE
VR06 VOLUME
VR07 TREBLE
VR08 BASS
SP OUT
AC
POWER SW
Q01, Q02, Q09, Q11 ~ Q14 ---- 2SA763
Q03, Q04, Q10, (Q05 ~ Q08) --- 2SC693 (G)
Q05 ~ Q08 ---------- 2SC1312 (G)
Q15, Q16, Q19, Q20 ---------- 2SC1175 (E, F)
Q17, Q18 ---------- 2SC536 (D,E,F)
Q27 ---------- 2SC1175 (D, E)
Q21, Q22 ---- 2SA659 (E, F)
Q23, Q24 ---- 2SD330 (D2, E, F)
Q25, Q26 ---- 2SB514 (D2, E, F)
D01, D02 ---- DS-430
D03 ---------- DS-19
D04 ---------- DS-132
D05 ---------- DS-131


SPEAKERS
B
A
L
R
BROWN
GRAY
BLACK
ORANGE
GREEN
TAPE 1
REC PLAY
OUT BACK
AUX TUNER PHONO
WHITE
PINK
RED
C01
0.04
C02
0.04
POWER TRANS
YELLOW
BROWN
ORANGE
PINK
BROWN
GRAY
AF P.C.B.
VIOLET
BLUE
LIGHT-BLUE
PINK
GREEN
ON
OFF
MIC MIXING
RECORDING
SWITCH
TAPE 2
REC/PB
BLUE
GREEN
GREEN
ORANGE
ORANGE
BLACK
FUSE
(3.15A)
FUSE
(2A)
PROTECTOR
FUSE (2A)
YELLOW
R CH
OUT
MIC
TONE
PHONO
IN
LOUDNESS
PILOT
BLACK
BLUE
ORANGE
GREEN
C05
0.01
C04
0.01
POWER
SWITCH
HEADPHONE JACK
SWITCH P.C.B.
MIC JACK
MIC LEVEL
SI-A
SI-B
1 PHONO
2 TUNER
3 AUX